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1: Planta. 1997 Dec;203(4):422-9. SpringerLink Links  
FULL-TEXT ARTICLE**New ribosome-inactivating proteins with polynucleotide:adenosine glycosidase and antiviral activities from *Basella rubra* L. and *bougainvillea spectabilis* Willd.****Bolognesi A, Polito L, Olivieri F, Valbonesi P, Barbieri L, Battelli MG, Carusi MV, Benvenuto E, Del Vecchio Blanco F, Di Maro A, Parente A, Di Loreto M, Stirpe F.**

Dipartimento di Patologia Sperimentale dell'Università di Bologna, Italy.

New single-chain (type 1) ribosome-inactivating proteins (RIPs) were isolated from the seeds of *Basella rubra* L. (two proteins) and from the leaves of *Bougainvillea spectabilis* Willd. (one protein). These RIPs inhibit protein synthesis both in a cell-free system, with an IC<sub>50</sub> (concentration causing 50% inhibition) in the 10(-10) M range, and by various cell lines, with IC<sub>50</sub>s in the 10(-8)-10(-6) M range. All three RIPs released adenine not only from rat liver ribosomes but also from *Escherichia coli* rRNA, polyadenylic acid, herring sperm DNA, and artichoke mottled crinkle virus (AMCV) genomic RNA, thus being polynucleotide:adenosine glycosidases. The proteins from *Basella rubra* had toxicity to mice similar to that of most type 1 RIPs (Barbieri et al., 1993, *Biochim Biophys Acta* 1154: 237-282) with an LD<sub>50</sub> (concentration that is 50% lethal) < or = 8 mg.kg<sup>-1</sup> body weight, whilst the RIP from *Bougainvillea spectabilis* had an LD<sub>50</sub> > 32 mg.kg<sup>-1</sup>. The N-terminal sequence of the two RIPs from *Basella rubra* had 80-93% identity, whereas it differed from the sequence of the RIP from *Bougainvillea spectabilis*. When tested with antibodies against various RIPs, the

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Isolation and characterization of an RIP (ribosome-inactivating protein)-like protein from tobacco with dual enzymatic activity [Plant Physiol. 2004]

Ribosome-inactivating and adenine polynucleotide glycosylase activities in *Mirabilis jalapa* L. tissues [J Biol Chem. 2002]

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RIPs from *Basella* gave some cross-reactivity with sera against dianthin 32, and weak cross-reactivity with momordin I and momorcochin-S, whilst the RIP from *Bougainvillea* did not cross-react with any antiserum tested. An RIP from *Basella rubra* and one from *Bougainvillea spectabilis* were tested for antiviral activity, and both inhibited infection of *Nicotiana benthamiana* by AMCV.

PMID: 9421927 [PubMed - indexed for MEDLINE]

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